

07860-1
4/3/89

Business In Nebraska

March 1989
Vol. 44 No. 534



Prepared by the Bureau of Business Research
200 College of Business Administration
University of Nebraska-Lincoln
Lincoln, NE 68588-0406
402/472-2304

Nebraska Export Industries: An Examination of Those With Greatest Potential

David D. DeFruiiter
Statistical Technician
UN-L Bureau of Business Research

Andrew Pitcher
Graduate Assistant
UN-L Bureau of Business Research

Considerable attention has focused on international trade in recent years because of growing concern over U.S. trade deficits and increasing market globalization. Individual states are exploring the international market for potential niches as one way to bring increased economic growth. *International* has been the key word of the 1980s because of trade deficits, market globalization, and economic growth opportunities for states and local areas.

This article studies the growing importance of global markets to Nebraska's economy. Several factors are examined—U.S. exports, Nebraska's exports (including comparative trade figures for the U.S.), fast growth exports, and foreign investments in Nebraska.

The most current available data are used in this research. National agriculture trade statistics are available through September 1988; limited trade statistics are available at the state and regional level for 1987; and the most current trade data for states and the nation (which include an industry breakdown for exporting and employment) are for 1984. All data cited are in current dollars.

U.S. Exports

The U.S. exported about 10 percent of Gross National Product in 1987 or about \$428.0 billion in direct sales of goods and services to foreign buyers. Table 1 provides a general summary of U.S. export statistics of goods for 1987.

Total manufacturing formed nearly 60 percent of total U.S. exports for 1987 (Table 1). Machinery and transportation equipment led the various manufacturing groups listed in Table 1 with over \$108,596.0 million in exports, followed by chemicals with \$26,380.9 million. Agriculturally related products represented 11.74 percent of total U.S. exports for 1987 or \$28,636.2 million in direct sales.

Total direct exports constituted over 10 percent of total shipments by U.S. manufacturing enterprises in 1987. Table 2

shows that over \$194.3 billion of manufactured materials and products were directly exported in 1987. This table also provides greater detail of manufactured exports for 1987 and comparative data for 1985.

Direct export figures used in this study represent the actual export of goods as reported by the manufacturers. Not included in direct exports are sales of manufactured goods to other industries nationwide, who incorporate them into their own exports. This component is referred to as *indirect export sales*. Although an industry may not export a finished product, many industries contribute either to the transformation of materials used in final exports or provide services such as transportation, communication, and insurance vital to exporting. Table 3 shows the contribution of indirect and direct exports for Nebraska and the U.S. The sum of direct and indirect is termed *export-related*.

Table 1
U.S. Exports for 1987

Sector	Market Value (\$ millions)	% of Total Exports
Agriculture	28,636.2	11.74
Nonagriculture	215,222.6	88.26
TOTAL	243,858.8	100.00
Food & live animals	19,178.8	7.86
Beverages & tobacco	3,666.7	1.50
Crude materials	20,416.3	8.37
Mineral fuels	7,713.1	3.16
Oils & fats	981.4	0.40
Chemicals	26,380.9	10.82
Manufactured goods by material	17,136.1	7.03
Machinery & transport equipment	108,596.0	44.53
Miscellaneous manufactured articles	19,409.0	7.96
Other	20,380.7	8.36
TOTAL	243,858.8	100.00

Source: *Highlights of U.S. Export and Import Trade*.

Table 2 also introduces the Standard Industrial Classification (SIC) coding system that separates economic activities into broad divisions (manufacturing, mining, retail trade, etc.). Each division further is divided into major sectors (two digit SIC), then into industry groups (three digit SIC), and finally into industries (four digit SIC).

Distribution of manufactured goods was significantly skewed toward a few industrial sectors. Five of the 20 major two digit SIC manufacturing sectors accounted for nearly 55 percent of direct export sales in 1987. The top five are: non-electric machinery, transportation equipment, chemicals and allied products, electric and electronic equipment, and food and kindred products.

Table 2
U.S. Exports of Manufactured Materials and Products

SIC Code	Industry	1987 Market Value (\$ mil)	% of Total Exports	1985 Market Value (\$ mil)	% of Total Exports
20	Food & kindred products	12,320.0	6.34%	10,053.8	5.92%
21	Tobacco products	2,309.6	1.19%	1,268.0	0.75%
22	Textile mill products	1,890.8	0.97%	1,461.6	0.86%
23	Apparel & other textile products	1,490.2	0.77%	1,018.7	0.60%
24	Lumber & wood products	3,961.3	2.04%	2,667.9	1.57%
25	Furniture & fixtures	550.1	0.28%	482.6	0.28%
26	Paper & allied products	5,676.4	2.92%	3,886.4	2.29%
27	Printing & publishing	1,525.1	0.78%	1,249.8	0.74%
28	Chemicals & allied products	26,093.8	13.43%	21,848.7	12.87%
29	Petroleum & coal products	4,425.9	2.28%	5,353.7	3.15%
30	Rubber & miscellaneous plastics products	3,709.0	1.91%	2,764.7	1.63%
31	Leather & leather products	688.8	0.35%	478.1	0.28%
32	Stone, clay, & glass products	2,065.5	1.06%	1,805.8	1.06%
33	Primary metal industries	5,855.3	3.01%	4,823.5	2.84%
34	Fabricated metal products	5,642.8	2.90%	5,765.1	3.40%
35	Machinery, except electrical	40,851.3	21.02%	37,478.1	22.08%
36	Electric & electronic equipment	24,359.3	12.54%	18,908.2	11.14%
37	Transportation equipment	37,985.0	19.55%	38,024.5	22.40%
38	Instruments & related products	10,185.6	5.24%	8,623.0	5.08%
39	Miscellaneous manufacturing industries	2,718.8	1.40%	1,773.1	1.04%
Total		*194,304.6	100.00%	169,735.1	100.00%

* This number will not equal the nonagriculture figure in Table 1 because such nonagricultural commodities as mining, fishing, etc. are not part of the manufacturing division.

Source: *Trade and Employment*, U.S. Department of Commerce.

Table 3
Contribution of Direct and Indirect Exporting In Nebraska and U.S.

SIC 1984 Code	% of Shipments Exported			U.S.			% of Manufacturing Employment Export-Related	
	Direct	Nebraska Indirect	Total	Direct	Indirect	Total	NE	US
-- Total	5.6%	3.2%	8.8%	5.4%	5.7%	11.1%	10.0%	11.9%
20 Food & kindred products	4.1%	1.4%	5.5%	2.7%	1.0%	3.7%	4.5%	4.8%
21 Tobacco products	N/A	N/A	N/A	18.4%	1.9%	20.3%	N/A	14.6%
22 Textile mill products	N/A	N/A	N/A	2.4%	4.4%	6.8%	N/A	7.4%
23 Apparel & other textile products	0.6%	0.9%	1.5%	1.1%	0.9%	2.0%	0.3%	3.0%
24 Lumber & wood	0.1%	0.9%	1.1%	2.8%	3.8%	6.6%	0.3%	8.3%
25 Furniture & fixtures	1.3%	0.6%	1.9%	1.5%	1.0%	2.5%	0.3%	2.7%
26 Paper & allied products	0.2%	7.4%	7.6%	3.0%	6.7%	9.7%	7.1%	10.6%
27 Printing & publishing	0.1%	3.3%	3.4%	0.8%	3.0%	3.8%	3.6%	4.2%
28 Chemicals & allied products	2.2%	4.5%	6.7%	9.5%	5.7%	15.2%	7.1%	16.6%
29 Petroleum & coal products	N/A	N/A	N/A	2.7%	4.5%	7.2%	N/A	7.8%
30 Rubber & miscellaneous plastics	5.4%	8.7%	14.1%	3.4%	7.7%	11.1%	14.0%	11.7%
31 Leather & leather products	N/A	N/A	N/A	2.7%	0.8%	3.5%	N/A	6.8%
32 Stone, clay, & glass products	1.6%	2.1%	3.7%	3.2%	4.2%	7.4%	0.3%	7.2%
33 Primary metal industries	1.5%	18.1%	19.6%	2.8%	16.3%	19.1%	16.7%	19.5%
34 Fabricated metal products	4.5%	4.6%	9.1%	4.2%	7.5%	11.7%	9.1%	11.6%
35 Machinery, except electrical	25.1%	4.3%	29.4%	13.4%	6.5%	19.9%	29.0%	21.5%
36 Electric & electronic equipment	2.7%	7.9%	10.6%	9.0%	9.8%	18.8%	13.2%	18.2%
37 Transportation equipment	4.4%	2.7%	7.1%	10.5%	2.3%	12.8%	6.8%	12.8%
38 Instruments & related products	8.3%	1.1%	9.4%	13.7%	2.4%	16.1%	7.5%	15.4%
39 Misc. manufacturing industries	4.8%	1.4%	6.2%	4.6%	1.8%	6.4%	0.3%	7.4%
-- Administrative & auxiliary office	N/A	N/A	N/A	N/A	N/A	N/A	6.3%	12.5%

N/A Not applicable

Source: *Origin of Exports of Manufactured Products*, Bureau of the Census.

Another measure of exports is employment. It was estimated that in 1984, 11.9 percent of the persons employed in manufacturing were employed in the production of exported-related sales (Table 3). The manufacturing sectors with the highest proportion of export-related employment were non-electrical machinery (21.5 percent), primary metal industries (19.5 percent), electric and electronic equipment (18.2 percent), chemicals and allied products (16.6 percent), and instruments and related products (15.4 percent). These sectors, plus tobacco products, exported over 15 percent of shipments.

Turning to agriculture, agriculturally related commodities formed approximately 12 percent of all U.S. exports in the 1987 (see Table 1). Table 4 presents a agricultural commodities breakdown in the U.S. for both exports and cash receipts. 1987 cash receipts for Nebraska also are shown (actual export data not available for Nebraska). The largest share of the U.S. agricultural commodity exports came from the grains and feed category, with almost 36 percent of the total. The largest subcategories were wheat and flour with a little over 13 percent of the total and corn with slightly over 12 percent of the total agricultural commodity

Table 4
Major Agricultural Commodities and Cash Receipts

Commodity	U.S. Exports*				Cash Receipts**	
	1987		1988		1987	1987
	Market Value (\$ mil)	% of Total	Market Value (\$ mil)	% of Total	U.S. (\$ mil)	Nebraska (\$ mil)
Grains and feed	9,301	33.4%	12,743	35.9%	18,471.73	1,385.47
Wheat & flour	3,084	11.1%	4,638	13.1%	4,868.61	167.94
Corn	3,048	10.9%	4,338	12.2%	8,806.52	1,003.08
Soybeans and products	4,205	15.1%	5,142	14.5%	9,565.15	414.46
Livestock and products	3,956	14.2%	4,913	13.9%	44,715.90	4,616.69
Poultry and products	594	2.1%	648	1.8%	11,486.54	48.44
Dairy products	495	1.8%	541	1.5%	17,828.60	161.82
Horticultural products	3,152	11.3%	3,818	10.8%	7,868.60	1.63
Tobacco	1,204	4.3%	1,296	3.7%	1,826.78	N/A
Cotton & linters	1,429	5.1%	2,136	6.0%	4,027.44	N/A
Total***	\$27,876		35,465		138,094.41	6,823.05

* Fiscal year data (October-September).

** Calendar year data (January-December).

*** Figures will not sum to total because only major items are listed.

#This figure will be close but will not equal the 1987 agriculture-related export figure in Table 1 because this number is reported for the fiscal year.

N/A Not applicable

Source: *Economic Indicators of the Farm Sector*, Department of Agriculture, 1987.

Table 5
Nebraska Manufacturing Export Industries by Major Group for 1984

SIC Code	Total Shipments* (\$ mil)	Direct Exports** (\$ mil)	Supporting Exports*** (\$ mil)	Total Export-Related (\$ mil)	Total Employment (000)	Direct Export Employ. (000)	Supporting Export Employ. (000)	Total Export-Related Employment (000)
-- NEBRASKA TOTALS	15,064.4	838.0	480.1	1,318.1	92.2	5.4	3.8	9.2
20 Food & kindred products	8,387.0	345.7	119.0	464.7	24.2	0.8	0.3	1.1
23 Apparel & other textile products	98.4	0.6	0.9	1.5	1.8	0.3	0.3	0.6
24 Lumber & wood products	190.1	0.2	1.8	2.0	2.3	0.3	0.3	0.6
25 Furniture & fixtures	197.0	2.5	1.2	3.7	2.0	0.3	0.3	0.6
26 Paper & allied products	131.8	0.3	9.8	10.1	1.4	0.3	0.1	0.4
27 Printing & publishing	461.6	0.4	15.2	15.6	8.4	0.3	0.3	0.6
28 Chemicals & allied products	622.4	14.0	28.2	42.2	2.8	0.1	0.1	0.2
29 Petroleum & coal products	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
30 Rubber & misc. plastics products	353.2	19.0	30.7	49.7	4.3	0.2	0.4	0.6
31 Leather & leather products	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
32 Stone, clay, & glass products	251.2	3.9	5.2	9.1	2.2	0.3	0.3	0.6
33 Primary metal industries	571.0	8.4	103.6	112.0	2.4	0.3	0.4	0.7
34 Fabricated metal products	638.1	28.7	29.4	58.1	6.6	0.3	0.3	0.6
35 Machinery, except electrical	1,274.1	319.4	55.1	374.5	12.4	3.0	0.6	3.6
36 Electric & electronic equipment	715.7	19.2	56.4	75.6	7.6	0.2	0.8	1.0
37 Transportation equipment	560.2	24.4	15.4	39.8	4.4	0.2	0.1	0.3
38 Instruments & related products	475.9	39.5	5.1	44.6	4.0	0.2	0.1	0.3
39 Misc. manufacturing industries	50.0	2.4	0.7	3.1	1.1	0.3	0.3	0.6
-- Auxiliaries	N/A	N/A	N/A	N/A	3.2	0.0	0.2	0.2

N/A Not applicable

* Includes total domestic and export shipments for all manufacturing establishments.

** Includes only the value of manufactured products exported by the producing plants.

*** Includes shipments of components, parts, supplies, etc., used by plants producing the export product.

Source: Bureau of the Census, *Annual Survey of Manufactures: Origin of Exports of Manufactured Products, 1984*.

ties exported in the U.S. Even though the time periods are different for exports and receipts, it appears that the value of exports for grains and feeds was roughly half the value of total U.S. cash receipts in 1987. Corn exports alone formed about one-third of total cash receipts, indicating the agricultural division's dependence on foreign markets for a substantial share of their market.

Nebraska Exports

Nebraska's manufacturing industries had over \$1.3 billion in sales of export-related manufactured goods in 1984. Table 5 shows a breakdown for Nebraska export sectors. Over \$838 million was in direct export sales, while another \$480 million was in sales of manufactured goods to other industries (indirect exports) nationwide. This ranked Nebraska 35th among all 50 states and the District of Columbia in the value of export-related manufactured products sold. Of Nebraska's export-related sales of manufactured goods, over 64 percent was in the food products and the non-electric machinery sectors. Nebraska was the 11th largest exporter of food products in the nation and was ranked 28th nationally in exports of non-electric machinery.

The fact that in 1984 the Nebraska food and kindred products sector contributed 35 percent to the state's total of indirect and direct exports illustrates the important contribution of agriculture to Nebraska exports. Because actual figures on state level agricultural exports are not compiled, the important role that Nebraska's agriculture serves in U.S. agricultural exports can be viewed only indirectly. For instance, Nebraska was ranked

fourth overall in the U.S. for total agricultural commodity receipts in 1987. The state was also the third largest producer of corn, with 11 percent of the total U.S. cash receipts, and the 11th largest producer of wheat (3 percent). For the livestock products category, the state was ranked third (10 percent). (Agricultural exports will be the subject of a future *Business in Nebraska* article.) Agricultural exports play a vital role in U.S. exports. For Nebraska, with its strong agricultural base, this division is even more crucial. Another economic division of perhaps equally strong growth potential in the state, however, is Nebraska's manufacturing sector.

Total export-related manufacturing accounted for 8.8 percent of Nebraska's total manufactured goods produced (Table 3), ranking the state 44th in this measure of total exports of goods. Given Nebraska's geographic isolation from coastal ports and U.S. borders, it is not surprising that the state had a lower manufactured export component relative to the nation. Table 3, however, shows that Nebraska directly exported 5.6 percent of its total manufacturing shipments in 1984, slightly above the national average for that year. Nebraska had three exporting sectors that directly exported more than 5 percent of their total shipments. The non-electric machinery sector led with 25.1 percent of total shipments directly exported to foreign markets (Table 3).

A recent article published by the Federal Reserve Bank of Kansas City ("Regional Exports of Manufactured Products," *Economic Review*) showed that in 1987 the Plains region (Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and

Table 6
U.S. Fastest Growing Export Commodity Groups* and Nebraska's Corresponding Employment

SIC Code	Sector	1987 U.S. Exports (millions)	1986 Nebraska Employment	1986 Firms in Nebraska
3523	Farm machinery & equipment	\$1,075.2	3,750 e	83
3661	Telephone & telegraph apparatus	964.5	3,750 e	2
2752	Commercial printing, lithographic	17,378.0	2,710	112
3841	Surgical & medical instruments	799.2	1,750 e	7
3676	Electronic resistors	789.2	1,750 e	2
3573	Electronic computing equipment	212.4	1,750 e	7
3561	Pumps & pumping equipment	329.1	1,146	8
2048	Prepared feeds	39.7	1,145	86
3423	Hand & edge tools, n.e.c.	3,156.6	750 e	5
2086	Bottled & canned soft drinks	675.2	750 e	14
2542	Metal partitions and fixtures	298.3	750 e	3
2834	Pharmaceutical preparations	289.3	750 e	4
3613	Switchgear & switchboard apparatus	186.4	750 e	3
3357	Nonferrous wire drawing & insulating	156.4	750 e	2
3799	Transportation equipment, n.e.c.	111.9	750 e	2
3531	Construction machinery	434.2	687	7
2047	Dog, cat, & other pet food	342.4	564	4
2751	Commercial printing, letterpress	1,825.9	559	51
2653	Corrugated & solid fiber boxes	37.0	514	7
2077	Animal & marine fats & oils	3,492.5	377	12
3339	Primary nonferrous metals, n.e.c.	2,407.6	375 e	1
3312	Blast furnaces & steel mills	654.6	375 e	1
3411	Metal cans	490.8	375 e	1
2037	Frozen fruits & vegetables	272.1	375 e	4
3675	Electronic capacitors	266.3	375 e	1
3662	Radio & T.V. communication equipment	152.3	375 e	8
3499	Fabricated metal products, n.e.c.	1,469.1	310	9
3679	Electronic components, n.e.c.	62.2	287	9
3949	Sporting & athletic goods, n.e.c.	729.5	274	11
3568	Power transmission equipment, n.e.c.	2,499.1	214	5

*Defined as export commodity groups with increase of 25 percent or more and \$5 million or more from first quarter 1987

e These figures represent a median value because *County Business Patterns* gives only a range of employment for reasons of confidentiality.

South Dakota) contributed 3.88 percent of total U.S. manufacturing exports. This article noted that these direct exporting numbers reflect the state where the exports were consolidated or shipped (port of embarkation) and not necessarily where they originally were produced or processed (indirect exports).

Nebraska's component which adds value to exporting by stage of processing (indirect exporting) is lower than the national average. This may reflect a lack of industries to support further processing in Nebraska. Indirect exporting, however, is still important to Nebraska. Table 3 shows the importance of supplying materials and products (indirect exporting) to others that directly export. Four sectors in Nebraska indirectly sold 7 percent or more of their output to export-related demand, with the primary metal industries indirectly exporting 18.1 percent of its 1984 output. The other three industrial groups that indirectly exported more of their shipments than the national average were: rubber and miscellaneous plastics products (8.7 percent), electric and electronic equipment (7.9 percent), and paper and allied products (7.4 percent) (see Table 3).

Total export-related output in Nebraska for 1984 also provided some 9,200 manufacturing jobs in the state, with 39.0 percent of these jobs found in the non-electric machinery sector (Table 5). This export-related employment constituted approximately 10.0 percent of Nebraska's manufacturing labor force or one of every ten jobs for 1984. Four manufacturing sectors in the state employed 13 percent or more of their workforce in the production of direct and indirect exports. Besides the non-electric machinery sector, the other three were: rubber and miscellaneous plastics, primary metals, and electric and electronic equipment. In addition, an estimated 12,100 workers in such nonmanufacturing divisions as transportation, communication, agriculture, and services owed their jobs to Nebraska's output of total export-related manufactured goods.

The Kansas City Federal Reserve article cited earlier indicates that the Plains region's most major international markets for manufactured goods were Canada (33.4 percent), Japan (11.6 percent), and Great Britain (7.5 percent). The Plains region exceeded the United States in terms of the proportion of export-related manufactured goods in 1987 for the preceding countries.

Fast Growth Exports

Given the importance of exports, it becomes crucial to consider which export industries represent the best potential for future growth in Nebraska. For the purpose of this study, the fastest growing national export industries have been defined as the U.S. domestic export commodity groups with an increase in value of 25 percent or more and with an increase of \$5 million or more from the first and second quarters of 1987 to the same period of 1988. National domestic export commodity groups, specified by four digit SIC code, were identified in the first and second quarter 1988 *Trade and Employment* publications from the U.S. Department of Commerce.

County Business Patterns, also published by the Department of Commerce, was used to identify the number of Nebraskans employed in the fastest growing national export industries.

The fastest growing national exporting manufacturing group comprises a wide range of industries. There are a total of 192 four digit SIC manufacturing industries that form this group. Sixty-

County of the Month

Sheridan



Size of county: 2,481 square miles, ranks 4th in the state

Population: 7,200 (estimated) in 1987, a change of -4.1 percent from 1980

Median age: 33.6 years in Sheridan County, 29.7 years in Nebraska in 1980

Per capita personal income: \$12,510 in 1986, ranks 57th in the state
Unemployment rate: 3.2 percent in Sheridan County, 4.9 percent in Nebraska for 1987

Net taxable retail sales (\$000): \$33,799 in 1987, a change of +2.2 percent from 1986; \$34,537 during January-November 1988, a change of +14.4 percent from the same period one year ago

Number of business and service establishments: 208 in 1986; 69 percent with less than five employees

Nonfarm employment (1987):	State	Sheridan County
Wage & salary workers	659,223	1,794
	(percent of total)	
Manufacturing	13.3%	10.8%
Construction and Mining	3.9	0.4
TCU	6.5	3.8
Retail Trade	18.7	25.8
Wholesale Trade	7.1	7.3
FIIE	7.3	5.1
Services	22.7	10.0
Government	20.5	36.8
Total	100.0%	100.0%

Agriculture:

Number of farms: 704 in 1982, 723 in 1978

Average farm size: 2,054 acres in 1982

Market value of farm products sold: \$51.8 million in 1982 (\$73,581 average per farm)

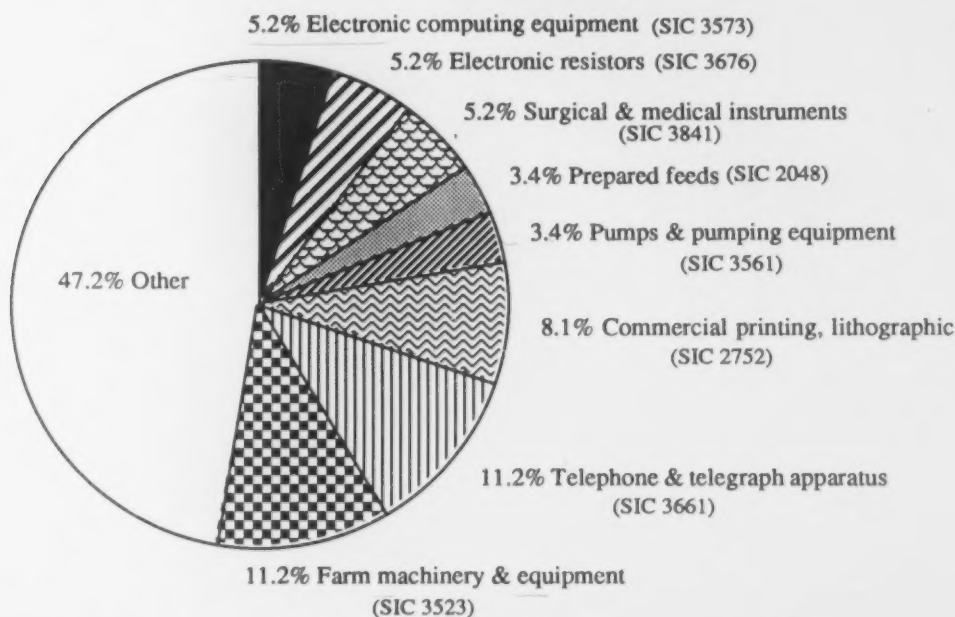
Sources: U.S. Bureau of the Census, U.S. Bureau of Economic Analysis, Nebraska Department of Labor, Nebraska Department of Revenue

Merlin W. Erickson

six of these narrowly defined industries, employing 33,625 persons, were recorded as being represented in Nebraska. (A later issue of *Business In Nebraska* will report the results of a current Bureau of Business Research study that examines the competitive advantages of these sectors in Nebraska. This analysis should shed some light on prospects for industrial expansion in Nebraska.) The top 30 four digit industries are shown in Table 6. Nebraska has a relatively small manufacturing base, with 85,926 (or 11.1 percent) of 772,000 total employment in the state in 1986. Over 39.0 percent of the state's workforce in manufacturing was employed in industries that were included in the fastest growing U.S. export commodity industries. If these export industries are grouped into a broader three digit SIC industrial group that encompasses one or more of these four digit SIC growth industries, the employment level rises to over 50 percent of Nebraska's manufacturing division.

Nebraska shows significant employment strengths in eight of these fastest growing SIC commodity industries (see Figure 1). The following commodity industries have a thousand or more employees: farm machinery and equipment (3,750), telephone and telegraph apparatus (3,750), lithographic commercial print-

Figure 1
Percentage Breakdown of Total Nebraska Employees in the
Fastest Growing U.S. Export Commodity Groups



ing (2710), electronic computing equipment (1,750), electronic resistors (1,750), surgical and medical instruments (1,750), pumps and pumping equipment (1,146), and prepared feeds (1,145).

Of the highest ranking U.S. boom export commodity industries, Nebraska appears to have a comparative advantage in the industry of farm machinery and equipment, with 83 firms listed in the *County Business Patterns* in 1986. These four digit industries tend to be scattered throughout the state, with firms servicing small rural communities. For exports to develop in such industries, it may be necessary for the state to develop further the supporting infrastructure.

Another Nebraska industry that appears to possess the potential for growth is prepared feeds, with 86 industries listed by four digit SIC code. This industry seems a logical choice for expansion in Nebraska because of the availability of raw materials produced in the state. The four digit SIC industries of commercial printing (both lithographic and letterpress) have a combined employment level of 3,369 persons employed in 163 different Nebraska companies. The industry of telephone and telegraph apparatus may be a potential growth area in Nebraska with its already large employment base. This employment base, however, is centered in one firm. American Telephone & Telegraph Company in Omaha accounts for an estimated 95 percent of the employees in this Nebraska industry. The four digit industry of pumps and pumping equipment also perhaps should be considered as an area for potential growth, with 1,146 employees in eight different factories in Nebraska.

The seven fastest growing national manufacturing industries in which Nebraska employment is 1,000 or more hold potential

for contributing to future economic development. Nebraska also has the potential for further export growth in industries that have developed from the state's agricultural base. The farm machinery and equipment and prepared feeds industries are strong examples. There are some manufacturing export industries that have shown rapid growth and may have further growth potential although they are not among the larger employers in the state. These may represent industries with a competitive advantage, particularly if it can be shown that the competitive advantage exists statewide rather than being unique to a single firm's location. One such industry is hand and edge tools with approximately 750 employees in five locations in Nebraska. About half of the persons in this industry are employed by one company that currently is exporting goods in nearly 100 countries. Another industry that may offer some potential for export growth, with seven different companies located in the state, is construction machinery. These companies are varied in size and together employ an estimated 687 workers.

There are other possible industries that may be underdeveloped in terms of export potential in Nebraska. Two examples are primary nonferrous smelting products and metal cans. These were ranked numbers one and 18 respectively in terms of the fastest growing export commodity groups in the U.S. Both industries employ between 250 and 500 persons in Nebraska. There is currently one firm in the primary nonferrous smelting product industry in Omaha and one metal can company in the state.

Foreign Investment in Nebraska

Another dimension of the impact of international trade on the Nebraska economy is foreign investment. This investment

Table 7
Foreign Investors in Nebraska by Industry

Product	Foreign Investor	Country
Zoo animal meat	Equinox N.V.	Belgium
Nitrogen fertilizer	Cominco Inc.	Canada
Frozen foods	John Labatt, Ltd.	Canada
Beet sugar	Tate and Lyle, Ltd.	England
Meat pet food	Grand Metropolitan	England
Architecture/engineer	Bouygues Company	France
Calcium phosphate	ILS Food Aquetaene	France
Electronics	Shizuki Electric Co.	Japan
Farm equipment	Kubota Tractor Ltd.	Japan
Grain processing	Mitsubishi Trading Corp.	Japan
Meat/poultry products	Nichirei Corporation	Japan
Motorcycles	Kawasaki Motors	Japan
Motorcycle accessory	Tokyo Seat Corporation	Japan
Pipes	Mitsubishi Heavy Ind.	Japan
Air pumps	Mason & Porter Ltd.	New Zealand
Real estate —	Saudi Arabia	Saudi Arabia
Medical equipment	Arjo Corporation	Sweden
Insurance	Zurich Insurance	Switzerland
Pharmaceuticals	Sandoz Inc.	Switzerland
Snack food	Sandoz Inc.	Switzerland

Source: Nebraska Department of Economic Development, 1987.

represents overseas firms finding a competitive advantage by investing resources in the state. Table 7 shows a list of Nebraska companies wholly or partly owned by foreign investors.

There are nine major countries invested in Nebraska. These countries represent a wide variety of foreign investments, with products as diverse as pharmaceutical products to pipes. Many of these industries, such as frozen foods, meat pet foods, and pure beet sugar, are directly related to Nebraska's agricultural base.

Conclusions

This study identifies some Nebraska export industries that may have the greatest potential for contributing to economic

Nebraska's Highways

Gasohol is important to Plains states in the search for alternative uses for agricultural products--low expected growth in food consumption forces producers to look for new uses for crops. According to the Federal Highway Administration, Nebraska led the Plains states (Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota) in 1987 with a 31.2 percent gasohol to gasoline use ratio. Iowa was second with 29.0 percent, followed by North Dakota with 16.5 percent. Missouri had the lowest ratio of the group, 0.8 percent. Iowa led in total gallons (397,029), and Nebraska was second with 241,984 gallons.

Lower tax rates on gasohol compared with those on gasoline appear to increase gasohol consumption. Missouri has no difference between gasohol and gasoline taxes and used only 21,912 gallons of gasohol. In contrast, the Nebraska tax on gasohol is 3.0 percent lower than the tax on gasoline, leading to a higher rate of utilization. The tax differential and utilization level relation does not hold for all states. Iowa only has a 1.0 percent difference, yet has high gasohol consumption.

Nebraska had 1,281,605 motor vehicles registered in 1987, trailed by only North Dakota and South Dakota among the Plains states. Missouri led the Plains states with 3,685,020 registrations. When motor vehicle registrations are compared on a per

growth and development. This potential growth could occur either in direct export of goods or in indirect contributions to other industries that fall under the umbrella of the fastest growing exporting industries in the U.S.

Perhaps the most significant factor impeding export development in the state is one that is the least costly to overcome--the attitude of local businesses toward exporting. Geographic isolation has tended to stop Nebraskans from searching for new markets. There are many risks in exporting, but also the possibility of high returns. We must learn new skills in marketing Nebraska products, and we must understand cultural differences between our trading partners and ourselves.

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capita basis, Nebraska's 0.82 registrations per person topped only Minnesota and Missouri among the Plains states. North Dakota ranked first in per capita motor vehicle registration comparisons with 0.97, followed by Iowa and South Dakota with 0.95. The Plains states per capita figures compare favorably with the U.S. per capita figure of 0.74. Nebraska ranked third among the Plains states in a comparison of percentage growth rates of motor vehicle registrations from 1986 to 1987 at 1.9 percent. Minnesota led with 2.7 percent growth, followed by Iowa with 2.3 percent gain.

Nebraska was ahead of only North Dakota and South Dakota in the Plains group in total public road and street miles with 92,401 miles. Kansas led with 132,931 miles, followed by Minnesota with 132,843 miles. On a per capita basis, North Dakota led with 0.128 miles per person, followed by South Dakota with 0.104. Nebraska was third with 0.058 miles per person. Minnesota and Missouri rank at the bottom of the group with 0.031 and 0.023 miles per person, respectively.

Rebecca S. Cox

This short is the second in a series written by undergraduate research assistants at the Bureau of Business Research. The undergraduate research assistant program is an innovation at the UN-L College of Business this semester designed to give students experience in applied research, statistics, and analysis.

Review and Outlook

The Producer Price Index (PPI) increased 1.0 percent from December. Most of the increase was in energy and food. The PPI increases, except energy and food, were in line with the overall increases of the PPI for the last year. The Consumer Price Index (CPI) increased 0.6 percent, the largest single jump in many years. The stock market fell sharply the day the report was released. Most of the gains came from food and energy. Food and beverage prices advanced 0.7 percent from December, as did transportation prices. Both energy and medical care price indexes rose 0.8 percent. Removing the increases for food and energy, the CPI rose 0.5 percent from December.

Chart I displays changes in the CPI for the past several years. Prices have been steady for the past several years. The exception to the pattern is 1986 when price inflation slowed due to a drop in energy prices.

Although we should be concerned about inflation, we should not overreact to a single month's news. I suspect that near-term inflation figures will not reflect the January experience and that prices will moderate. Recent changes in food prices can be attributed to the drought. Most of the impact of the drought has worked through the price system. Chart II displays the drought-related effects on food prices in the second half of 1988. Food prices likely will moderate in the near future. The bigger question mark comes in the energy area, an area influenced by many international political and other factors.

A key indicator to gauge monetary policy is the federal funds rate. Federal funds represent overnight borrowing between banks. In February and March 1988, the federal funds rate was around 7.0 percent, but toward the end of the year had risen to 9.0 percent. In recent weeks, it has been 9.5 to 10.0 percent.

GNP figures for the fourth quarter of 1988 recently were revised. The Bureau of Economic Analysis estimates that real

GNP will increase 2.5 percent due to the release from drought effects alone.

Total housing starts have fallen for the last three years. A change in tax laws eliminated some of the benefits of investing in residential property—multiple unit housing starts peaked at the end of 1985 and have decreased since then. In 1988, multiple unit housing starts were about 400,000 units, 75,000 below 1987.

Single family housing starts, however, continued to climb throughout 1986, peaked in the early months of 1987, fell erratically throughout the remainder of 1987, and reached a plateau near the beginning of 1988. Throughout 1988, housing starts retained their volatile pattern, showing some slight increases toward the end of the year. For the year as a whole, single family housing starts were 1,080,000 units. Housing starts probably will be lower in 1989 than in 1988 because of the possibility of increasing interest rates.

Should housing be protected from business cycles? One argument for such protection is that housing is too important to the economy to be allowed to vary over the business cycle. To protect the housing industry, interest rates could be stabilized. This would return monetary policy to the days when the Federal Reserve underwrote federal government debt issues by fixing interest rates. Alternatively, the federal government could make up the difference between current interest rates and some steady (presumably low) interest rate level. In this age of concern over growing budget deficits, it is unlikely that such a major policy will be undertaken.

Another argument for protecting housing from the business cycle is that housing is the single largest asset of most persons. Home owners had good news throughout the 1960s and early 1970s when house prices increased steadily. It wasn't until the late 1970s that the general public discovered that real estate values could go down as well as up.

Last, one could argue that housing should be protected because our society has a goal that persons should be well housed.

Chart I
Consumer Price Index--All Items
Month to Month Percent Change vs. Year Ago

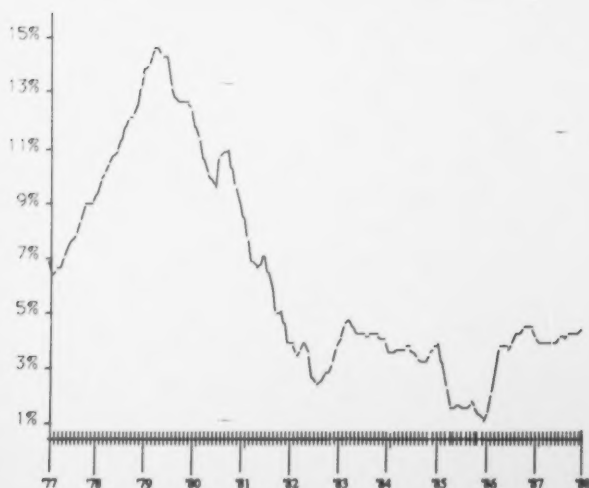
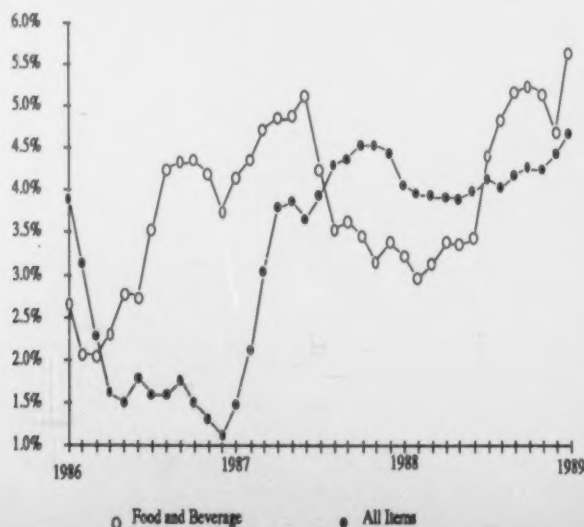


Chart II
Consumer Price Index--All Items and Food and Beverage
Month to Month Percent Change vs. Year Ago



It is difficult to see how that goal can be reached without major intervention from the federal government.

Complementing the housing area is the role of thrift institutions. The original concept behind thrifts was to encourage persons to build their own homes, with the idea that long-term mortgages could be financed with short-term deposits. That system worked for many years because savings and loan depositors were given a fixed rate on their savings below corresponding market rates. Bank deregulation removed savings rate ceilings. Savings and loans were made to look more like banks. They were allowed to issue checks and enter other loan areas. Some thrift institutions succeeded, others failed. Some pursued a fast buck and lost; some never changed their policies and held too many loans in their portfolios. These latter institutions were caught in a bind when interest rates rose.

Now, healthy thrifts and the taxpayers will be forced to bail out ailing savings and loans. Examination programs of the FSLIC need to be strengthened. This will necessitate increases in the budget of the FSLIC. Changes in the savings and loan industry will decrease its role in providing home mortgages.

Housing prospects for 1989 can be maintained with current levels of personal income. Baby boomers have been in the primary house buying age for some time now, but there are still enough of them left to support further increases in housing stock. The key is interest rates. Higher interest rates in 1989 imply lower housing starts by the end of this year.

Retail sales increased 0.6 percent in January. That rise came despite a fall in auto sales of 0.9 percent for the month. Excluding car purchases, retail sales grew 1.0 percent in January. The January Industrial Production Index increased 0.3 percent from December. That rate of gain was slightly below the 0.5 percent advance in December. Capacity utilization, a measure of industrial production relative to U.S. capacity, remained strong at 84.4 percent, the same level as December 1988. Housing starts increased 8.0 percent in January. The gain came mostly in the northeast section of the country where the weather was mild. Early housing start figures frequently are dominated by weather patterns and are not indicative of the year as a whole.

Personal income zoomed upward 1.8 percent in January. This increase followed a December gain of 0.9 percent. Despite the

Table I
National Indicators

	Annual		Quarterly (SAAR)			
	1987	1988	1988:I	1988:II	1988:III	1988:IV
Real GNP (% change)	3.4	3.8	3.4	3.0	2.5	2.0
Real Consumption (% change)	2.7	2.8	4.5	3.0	3.9	3.5
Housing Starts (millions)	1.6	1.5	1.5	1.5	1.5	1.5
Auto Sales (millions)	10.3	10.6	10.8	10.6	10.6	10.5
Interest Rate (90 day T-bill)	5.8	6.6	5.8	6.2	7.0	7.7
Unemployment Rate (%)	6.2	5.5	5.7	5.5	5.5	5.3
Industrial Production Index (1977=100)	129.8	137.2	134.5	136.0	138.4	139.8
Money Supply, M2 (% change)	6.5	5.1	6.8	7.7	3.7	3.0

NOTE: SAAR — Seasonally adjusted at annual rates

Table II
Employment in Nebraska

	Revised Dec. 1988	Preliminary Jan. 1989	Jan. Change vs. Year Ago
Place of Work			
Nonfarm	705,652	692,785	4.1%
Manufacturing	97,657	97,309	6.0%
Durables	47,449	47,323	5.6%
Nondurables	50,208	49,986	6.3%
Mining	1,498	1,278	-5.8%
Construction	24,796	22,351	10.3%
TCU*	47,121	46,618	8.3%
Trade	183,870	180,312	4.7%
Wholesale	51,053	50,804	5.3%
Retail	132,817	129,508	4.5%
FIRE**	48,586	48,476	3.1%
Services	161,984	160,221	4.6%
Government	140,140	136,220	-0.1%
Place of Residence			
Civilian Labor Force	816,760	810,285	1.8%
Unemployment Rate	3.0%	3.5%	

*Transportation, Communication, and Utilities

**Finance, Insurance, and Real Estate

Source: Nebraska Department of Labor

Table III
Price Indices

	Jan. 1989	Change vs. Year Ago	YTD Change vs. Year Ago
Consumer Price Index - U* (1982-84 = 100)			
All Items	121.1	4.7%	4.7%
Commodities	113.9	4.3%	4.3%
Services	128.9	4.9%	4.9%
Producer Price Index (1982 = 100)			
Finished Goods	111.0	4.5%	4.5%
Intermediate Materials	110.5	6.0%	6.0%
Crude Materials	101.0	8.1%	8.1%
Ag Prices Received (1977 = 100)			
Nebraska	157	17.2%	17.2%
Crops	137	44.2%	44.2%
Livestock	169	5.6%	5.6%
United States	147	12.2%	12.2%
Crops	137	19.1%	19.1%
Livestock	157	6.8%	6.8%

U* = All urban consumers

Source: U.S. Bureau of Labor Statistics

rise, personal spending rose only 0.1 percent. American consumers increased their savings rate. Consumer confidence, as measured by the Conference Board, was at its highest level in 20 years.

In February, the Fed released its projections for 1989. They see real GNP growing between 2.5 and 3.0 percent versus the 2.7 percent experienced in 1988 and consumer price rises between 4.5 and 5.0 percent. The 1988 increase was 4.3 percent. They project that M2, a commonly used measure of money supply, will gain between 3.0 and 7.0 percent. All the Fed's figures are fourth quarter to fourth quarter percent changes.

Nebraska Outlook

The Nebraska economy continues to be healthy. In January, Nebraska's unemployment rate stood at 3.5 percent, down from last year and down from December. The Nebraska unemployment rate is nearly two points lower than the January U.S. rate of 5.4 percent. Total employment in Nebraska in January increased 2.9 percent versus a year ago.

Building activity was strong in November, up 12.5 percent versus a year ago. Nebraska is sharing in nationwide growth of fourth quarter construction figures.

Retail sales in November continued their see-saw pattern. November was up 1.1 percent from a year ago. Most of the strength in November retail sales was in motor vehicle sales. In real terms, motor vehicle sales were up 18.2 percent versus a year ago. That increase contrasts with the 8.0 percent increase for the U.S. (on a unit count basis). November was 3.3 percent above year ago totals. On a national basis, October was the low point in the year for auto sales. If national figures are indicators, December will be a strong month for Nebraska motor vehicle sales when they are reported.

Net taxable retail sales in Nebraska have been strong throughout 1988. On a year to date basis, Nebraska was 10.5 percent ahead of 1987 levels through November. The patterns were mixed for the metro areas. Omaha region sales advanced 8.2 percent on a year to date basis, while the Lincoln area advanced 12.2 percent and South Sioux City 16.2 percent. Most regions in the state shared in the advances in retail sales.

John S. Austin

Table IV
City Business Indicators
November 1988 Percent Change from Year Ago

The State and Its Trading Centers	Employment (1)	Building Activity (2)
NEBRASKA	2.9%	15.5%
Alliance	1.3%	391.0%
Beatrice	-0.3%	113.0%
Bellevue	4.9%	38.2%
Blair	4.9%	63.6%
Broken Bow	-1.9%	-57.8%
Chadron	3.6%	-69.6%
Columbus	8.4%	15.7%
Fairbury	-0.6%	982.8%
Falls City	-1.8%	260.4%
Fremont	0.8%	-1.9%
Grand Island	0.3%	36.3%
Hastings	-0.8%	-11.4%
Holdrege	-1.4%	-83.0%
Kearney	-0.3%	27.3%
Lexington	-0.4%	12.8%
Lincoln	4.2%	10.3%
McCook	0.1%	10.6%
Nebraska City	-1.1%	37.1%
Norfolk	0.8%	-40.4%
North Platte	0.9%	15.0%
Omaha	4.9%	15.1%
Scottsbluff/Gering	-0.2%	69.4%
Seward	-1.2%	22.4%
Sidney	0.0%	59.8%
South Sioux City	7.3%	657.2%
York	-1.4%	-48.7%

(1) As a proxy for city employment, total employment (labor force basis) for the county in which a city is located is used.

(2) Building activity is the value of building permits issued as a spread over an appropriate time period of construction. The U.S. Department of Commerce Composite Cost Index is used to adjust construction activity for price changes.

Sources: Nebraska Department of Labor and reports from private and public agencies.



Table V
Net Taxable Retail Sales of Nebraska Regions and Cities

Region Number and City (1)	City Sales (2)		Region Sales (2)		YTD % Change vs. Year Ago
	Nov. 1988 (000s)	% Change vs. Year Ago	Nov. 1988 (000s)	% Change vs. Year Ago	
NEBRASKA	\$811,153	5.4	\$922,989	7.2	10.5
1 Omaha	277,513	2.0	340,487	3.6	8.2
Bellevue	12,726	-2.0	*	*	*
Blair	4,152	4.6	*	*	*
2 Lincoln	114,093	12.6	129,236	14.5	11.2
3 South Sioux City	4,260	21.8	5,848	14.2	16.2
4 Nebraska City	3,701	2.5	15,418	3.7	6.9
6 Fremont	14,501	4.5	27,281	9.9	10.8
West Point	2,470	11.9	*	*	*
7 Falls City	2,000	-23.4	8,445	-1.3	4.0
8 Seward	4,061	21.6	13,872	9.5	10.5
York	6,797	18.1	15,159	17.2	11.3
10 Columbus	13,955	2.1	25,150	4.7	12.9
11 Norfolk	19,815	17.5	33,598	16.4	15.7
Wayne	2,429	5.9	*	*	*
12 Grand Island	32,028	7.0	43,995	8.8	13.8
13 Hastings	14,768	13.2	23,437	11.9	9.6
14 Beatrice	7,626	2.9	16,608	5.2	7.4
Fairbury	2,620	-2.6	*	*	*
15 Kearney	17,854	12.9	24,796	13.6	17.5
16 Lexington	5,149	5.5	14,315	14.3	16.8
17 Holdrege	4,047	8.0	7,900	24.5	9.8
18 North Platte	14,210	9.3	17,885	11.6	14.5
19 Ogallala	4,830	11.2	10,242	18.5	13.2
20 McCook	7,545	9.0	10,726	11.6	13.6
21 Sidney	3,581	13.0	7,487	9.7	8.3
Kimball	1,598	-5.9	*	*	*
22 Scottsbluff/Gering	16,778	10.1	23,437	13.9	7.2
23 Alliance	5,062	14.5	13,598	11.7	10.4
Chadron	2,553	2.9	*	*	*
24 O'Neill	3,930	10.9	13,053	15.1	13.9
Valentine	2,431	19.0	*	*	*
25 Hartington	1,259	4.0	7,174	1.9	5.9
26 Broken Bow	3,351	20.8	11,383	20.6	18.3

(1) See region map.

(2) Sales on which sales taxes are collected by retailers located in the state. Region totals include motor vehicle sales.

* Within an already designated region.

Compiled from data provided by the Nebraska Department of Revenue

Figure II
Nebraska Net Taxable Retail Sales
(Seasonally Adjusted)

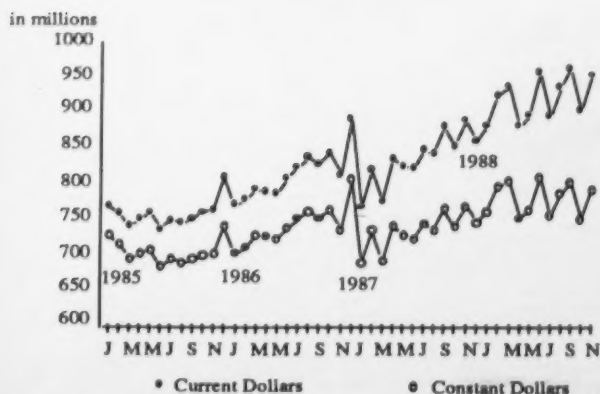
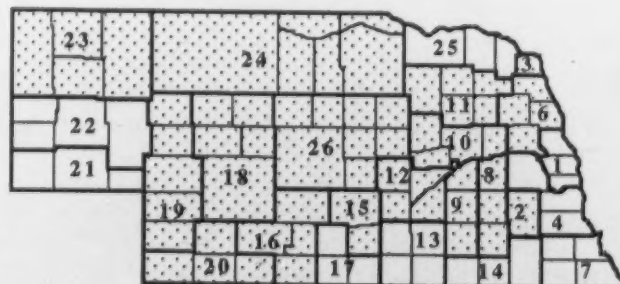


Figure III
Region Sales Pattern
YTD as Percent Change from Year Ago



(1) The Consumer Price Index (1982-84 = 100) is used to deflate current dollars into constant dollars

Shaded areas are those with sales gains above the state average. See Table V for corresponding regions and cities.

Scoreboard

Percent change from same month one year ago

	State	Metro+	Nonmetro
Motor Vehicle Sales (Nov.)			
Constant \$	18.2%	19.3%	17.4%
Nonmotor Vehicle Sales (Nov.)			
Constant \$	1.1%	0.4%	1.8%
Building Activity (Nov.)			
Constant \$	12.7%	11.6%	14.3%
Employment (Jan.)			
	2.9%	4.5%	1.3%
Unemployment Rate* (Jan.)			
	3.5%	3.1%	3.9%

+Omaha and Lincoln

*Unemployment is this month's rate, not a percent change from year ago

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March 1989, Volume 44 No. 534

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